

ABSTRACT

The present invention provides an improved process for making rare earth doped preforms and fibers by a combination of MCVD technique and solution doping method, said method comprising developing matched or depressed clad structure inside a silica glass substrate tube followed by deposition of unsintered particulate layer containing GeO_2 and P_2O_5 for formation of the core and solution doping by soaking the porous soot layer into an alcoholic/aqueous solution of RE-salts containing co-dopants like AlCl_3 / $\text{Al}(\text{NO}_3)_3$ in definite proportion, controlling the porosity of the soot, dipping period, strength of the solution and the proportion of the codopants to achieve the desired RE ion concentration in the core and minimize the core clad boundary defects and followed by drying, oxidation, dehydration and sintering of the RE containing porous deposit and collapsing at a high temperature to produce the preform and overcladding with silica tubes of suitable dimensions and fiber drawing to produce fibers.